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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,883	04/19/2005	Masaru Takeshita	SHIGA7.014APC	4534

20995 7590 08/03/2006

KNOBBE MARTENS OLSON & BEAR LLP  
2040 MAIN STREET  
FOURTEENTH FLOOR  
IRVINE, CA 92614

EXAMINER
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JOHNSON, CONNIE P

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/531,883	Applicant(s) TAKESHITA ET AL.	
	Examiner Connie P. Johnson	Art Unit 1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 April 2005.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>04/19/05, 08/19/05</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Status***

2. Claims 1-15 are presented.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-9 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Uetani et al., EP 1020767 A1.

Uetani teaches a resist composition comprising a substrate, resin composition (component A), a photoacid generator (component B) and an organic solvent (component C) (page 9, [0033]). The resin composition is insoluble or slightly soluble in alkali, but is converted to soluble by action of an acid. The resin comprises polymerization units of 2-alkyl-2-adamantyl (meth)acrylate, 3-hydroxy-1-adamantyl (meth)acrylate and  $\alpha$ -(meth)acryloxy- $\gamma$ -butyrolactone (pages 4-5). Component B may comprise a photoacid generator with a structure as in formula (V) of Uetani (see page 2). Formula V also comprises a perfluoroalkanesulfonate anion as (X<sup>-</sup>) (page 7, [0027]). The photoacid generator may also include a trifluoromethanesulfonate ion as in instant

claim 4 (page 13, [0047]). The resist composition further comprises an organic solvent, such as propylene glycol monomethyl ether acetate and ethyl lactate in combination (page 9, [0033]). The resist composition may also include a quencher (nitrogen containing compound). Suitable quenchers comprise the secondary and tertiary amine compounds on page 9 of Uetani (page 9, [0031]). Uetani also teaches the resist solutions are spin coated on the substrate, prebaked, exposed to radiation, post baked and developed (page 13, [0048]).

5. Claims 1-5 and 7-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Uetani et al., U.S. Patent No. 6,548,220 B2.

Uetani teaches a resist composition comprising a resin, acid generator, quencher (nitrogen-containing compound) and a solvent. The resin has a polymerization unit that is converted to alkali-solubility by action of an acid (col. 3, lines 5-6). The resin may also include a copolymer of methacrylic acid-2-methyl-2-adamantyl (col. 35, line 16). The methacrylic acid-2-methyl-2-adamantyl resin is a derivative of a methacrylate ester. The resin may further comprise (meth)acryloyoxy- $\gamma$ -butyrolactone and (meth)acrylic acid 3-hydroxy-1-adamantyl (col. 23, lines 16-55). Resin Synthesis Example 3 also shows 6-norbornanelactone as a suitable resin. The acid generator, formula (I) of the instant invention is the same as formula (IIa) of Uetani. The anion of the sulfonium salt may represent trifluoromethane sulfonate (col. 35, line 33). The solvent may include propylene glycol monomethyl ether acetate and ethyl lactate (col. 31, lines 1-8). The quencher (nitrogen-containing compound) may comprise a secondary amine, such as 2,6-diisopropylaniline (col. 35, lines 50-60). After forming the resin composition on the

silicon wafer (substrate), the composition is prebaked, exposed to radiation, post baked and developed to form the resist composition (col. 36, lines 1-15).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uetani et al., EP 1020767 A1 as applied to claims 1-9 and 11-14 above, and further in view of Uetani et al., U.S. Patent No. 6,548,220.

Uetani teaches a resist composition comprising a substrate, resin composition (component A), a photoacid generator (component B) and an organic solvent (component C). The photoacid generator may comprise a structure represented by formula V of the reference (see page 2 of Uetani, '767). The resin composition comprises polymerization units of adamantyl (meth)acrylates to increase polarity and improve adherence of the resist to the substrate. Uetani '767 does not teach a polymerization unit with a norbornanelactone group. However, Uetani '220 teaches a resin composition in resin synthesis example 3, comprising 2-ethyl-2-adamantyl methacrylate and 5-methacryloyoxy-2,6-norbornanelactone. It would have been obvious to one of ordinary skill in the art to use the norbornanelactone compound of Uetani '220 in the resin composition of Uetani '767 because Uetani '767 teaches resin compositions comprising

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adamantyl methacrylate and lactone groups to promote adherence of the resist composition to the substrate (page 6, [0013 and 0017]).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,117,621, U.S. Patent No. 6,384,169, U.S. Patent No. 6,444,396 and U.S. Patent No. 6,596,463.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Connie P. Johnson

Examiner

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AMANDA WALKE  
PRIMARY EXAMINER 7/23/06